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EFFECTIVE HAZARDOUS WASTE MANAGEMENT (NON-RADIOACTIVE)

Position Statement

ENVIRONMENTAL PROTECTION AGENCY

[FRL 600-7]

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Position Statement

BACKGROUND

In December 1975, the U.S. Environmental Protection Agency Office of Solid Waste Management Programs (OSWMP) conducted a series of four public meetings on hazardous waste management throughout the country. Over 70 speakers offered statements at those meetings with many additional written statements submitted for the record; the record of the meeting is now available for purchase.[1]

From the record of the meetings, it is clear that Federal guidance and technical advice on this topic is desired even in the absence of any regulatory requirements in existing Federal waste management legislation. Such guidance will be especially useful to the several States which are developing programs to control such wastes and are currently seeking technical and management counsel.

As a result, the Agency has decided to utilize the existing Solid Waste Disposal Act, as amended (42 U.S.C. 3251. et seq) as a means to make known to the waste management community (including States, local governments, industry, and Federal agencies) its position on various technical and policy issues which deserve widespread consideration.

Pursuant to section 204(b)(1) of the Solid Waste Disposal Act, as amended, the Administrator may issue advisory guidance and recommendations related to the disposal of waste materials. This issuance is one of a series to be published by the Agency. These guides represent the best technical and policy counsel of the Agency at the present time, and are based on work conducted over the past four years by the Agency. They will be brought up to date as significant new technological and policy developments occur. These guidance documents do not have regulatory or standard-setting status for anyone, including Federal agencies.

PURPOSE

The purpose of this position statement is to describe a preferred waste management strategy or set of priority pathways for hazardous waste control that adequately protects the public health and environment. The priority pathways are equally appropriate for routine (non-hazardous) waste management.

Responsibility for the controls over radioactive wastes covered by the Atomic Energy Act of 1954, as amended, has been assigned to the Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC), and U.S. Energy Research and Development Administration (ERDA), by Reorganization Plan No. 3 of 1970, and the Energy Reorganization Act of 1974. Activities of the three agencies in this effort are being coordinated by an Interagency Task Force chaired by the Office of Management and Budget. Environmental criteria for the management of these wastes will be issued by EPA as Federal Guidance under authority of the former Federal Radiation Council. The NRC is responsible for issuing necessary licensing.

This position statement contains fundamental concepts which the Agency believes should govern the management of non-radioactive hazardous waste and should form the basic foundation for effective State programs addressing this subject. Although State and local government officials and Federal agencies are the primary audience for this position statement, it should be of interest to hazardous waste generators, the waste treatment and disposal industry and concerned citizens as well. Many of the principles contained in this statement may well be applicable to a comprehensive strategy at the State level to plan for and assure environmentally sound management of all wastes.

DEFINITIONS

Although several statements at the December public meetings urged specific definition of hazardous wastes for regulatory purposes, it is the Agency's view that, for purposes of this advisory position statement, a precise definition is not necessary. Hazardous wastes are those which may cause or contribute to adverse acute or chronic effects on human health or the environment when such wastes are not properly controlled. These wastes primarily consist of the by-products of industrial production, conversion, and extraction activities, and may be in the form of solids, sludges, slurries, liquids, or powders. They are not otherwise directly regulated under current EPA authority. Thus, hazardous waste may include residues from pollution control devices (e.g., electrostatic precipitator dusts) as well as production rejects, excess, or obsolete chemicals and substance (e.g., DDT). For purposes of this position statement only, radioactive wastes are excluded.

Wastes containing toxic chemicals, pesticides, acids, caustics, flammables, and explosives are often classified as hazardous wastes, although their properties may vary widely. Consequently the specific properties of each waste must be considered in determining needed control procedures. Although hospital and veterinary wastes are not the major focus of this position statement, they may contain pathological wastes which can be considered hazardous, and many of the same principles are applicable and desirable.

The Agency intends to address the question of a detailed definition more specifically later in this series of guides. In addition to the waste constituents and characteristics cited above, the definition of hazardous wastes will probably address longevity, biodegradation after disposal, compatibility, and leachate problems.

POSITION STATEMENT ON HAZARDOUS WASTE MANAGEMENT

Due to their high potential for public health and environmental damage, some hazardous wastes require special control procedures. Management of these wastes means awareness and control over them from the time of generation through their transportation, temporary storage, treatment, and disposal. The Agency believes that this comprehensive management of hazardous wastes should be conducted or coordinated at the State level so that wastes may reach environmentally sound treatment and disposal facilities. Several States have adopted waste transportation control systems involving manifests or "trip-tickets" to monitor the waste flows. Such systems in the opinion of the Agency are the most effective methods to assure proper handling and tracking of wastes from generation to ultimate disposal. Effective identification and labeling of wastes by the generators are essential to the effective operation of any manifest-based system.

In addition, management of hazardous wastes means more than careful disposal. It implies consideration of alternate methods and schemes, both institutional and technical, to reduce the amount of the wastes as well as their inherent hazards. Most States, when they do regulate, only specifically control waste transport, treatment and disposal. While it is likely that legislatures will continue to restrict regulation to these phases of waste management, opportunities to control hazardous waste at the point of generation should also be explored. This position statment offers a hierarchical structure of waste management options based primarily on environmental concerns, recognizing that, in the absence of regulatory authority, economics will play a major role in the waste generator's decision process.

The Agency believes that reuse, energy recovery and material recovery as well as treatment are desirable *prior* to ultimate disposal, especially land disposal. Thus, the desired waste management options are (in order of priority):

Waste Reduction
Waste Separation and Concentration
Waste Exchange
Energy/Material Recovery
Waste Incineration/Treatment
Secure Ultimate Disposal

Waste reduction. Reducing the amount of hazardous waste at the source, through process changes, is desirable. Restriction of hazardous chemicals used in operations, substitution of less hazardous materials, and better quality control to reduce production spoilage are all examples of possible actions which reduce the amount of hazardous waste requiring disposal. Also, the less hazardous waste which must be disposed, the less the risk of environmental damage. Material recovery, such as solvent reclaiming, is another alternative which reduces wastes within the industrial facility.

[1] In press, Record of Public Meetings on Hazardous Waste Management, U.S. Government Printing Office.

Waste separation and concentration. Even with the minimum amount of waste, opportunities exist to isolate the more hazardous or toxic waste streams from the mixtures in which they occur. Waste separation early in process stream flows as well as simple isolation of similar wastes into separate disposal containers can reduce waste handling and disposal costs.

Moreover, isolation of such hazardous wastes in separate storage areas would permit operating personnel to focus their attention on careful management of those wastes.

Concentration of wastes by de-watering (with appropriate air pollution controls) will reduce the amount of wastes that require treatment or disposal. This process not only reduces the costs of ultimate disposal but, more significantly, minimizes transportation costs, which are frequently the major variable in total waste management costs. A savings in transportation costs could well counter any added cost of de-watering and might even reflect true savings to the waste generator.

Waste exchange. The Agency approves of waste clearinghouses where pretreated or untreated hazardous wastes are transferred. These clearinghouses utilize the concept that one man's waste can be another man's feedstock. At least six waste exchanges in Europe and two formally organized waste exchanges in the United States testify to the feasibility of this concept under a variety of institutional arrangements. Such clearinghouses are desirable but may only be feasible at a State or multi-State level. An EPA report on this subject will be available this fall.

Energy/material recovery. Recovery of potentially useful substances, energy or materials from hazardous wastes is desirable. Many wastes contain valuable basic materials, some of which are in short supply, making material recovery logical from both resource conservation and environmental viewpoints. Extraction of materials from concentrated waste may require less energy, and generate far less air and water pollution, than the mining and processing operations required to produce the material from virgin resources. As materials shortages become more widespread, material recovery from hazardous waste will become more attractive.

Likewise, the combustion of such wastes to recover energy or heat value for other purposes is endorsed by the Agency. Such operations usually require special high temperature equipment with emission control systems and effluent monitors.

Other limitations are imposed by the "quality control" aspects of waste utilization for energy. The user facility must have an adequate supply of fuel with consistent heat-value on a regular or full-time basis. Also, some provisions for standby or emergency operations are necessary. These limitations must be carefully considered and integrated into the planning for any system using industrial wastes for fuel.

Incineration/treatment. Incineration even without energy recovery is desirable, in its proper order of priority, mainly to destroy organic wastes. Other non-burnable wastes should be detoxified and neutralized to the extent possible through physical, chemical, and biological treatment. Careful attention to environmental emissions with control equipment and monitoring devices is still required regardless of the process employed. Additional information on incinerators may be found in EPA publication, Incineration in Hazardous Waste Management (EPA/530/SW-141).[2]

Secure land disposal. For those hazardous wastes not amenable to recovery, treatment or destruction, volume reduction (to minimize land use requirements) prior to secure land disposal is endorsed. Secure land disposal either through encapsulation of small quantities of waste or the use, on a larger scale, of a chemical waste landfill is recommended.

In general terms, a chemical waste landfill provides complete long-term protection for the quality of the surface and subsurface waters from hazardous waste deposited therein, and prevents hazards to public health and the environment. Such sites should be located or engineered to avoid direct hydraulic continuity with surface and subsurface waters. Generated leachates should be contained, and surface and subsurface flow into and out of the disposal area eliminated. Monitoring wells should be established, and a sampling and analysis program conducted. Air emissions should be controlled and monitored, as well. Additional characteristics of a chemical waste landfill are described in EPA publication, Landfill Disposal of Hazardous Waste: A review of Literature and Known Approaches (EPA/530/SW-165).[3]

Implementation

The implementation of the concepts outlined above either in total or in part requires extensive policy and technical discussions prior to decisionmaking. The Agency through its Regional Offices (Appendix I) as well as through the Office of Solid Waste Management Programs, Hazardous Waste Management Division (AW-465), 401 M Street, SW., Washington, D.C. 20460 is prepared to provide technical assistance to interested parties.

Dated: August 10, 1976.

Roger Stretlow,
Assistant Administrator
for Air and Waste Management.

[2] Available from Solid Waste Information, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268.

[3] Available from Solid Waste Information, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268

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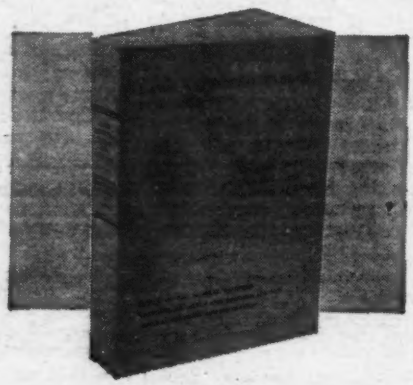
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